

CLAIMS

What is claimed is:

1 1 A method of adaptively controlling an antenna pattern of a wireless
2 communications device in a packet-switched wireless communications
3 network, the method comprising the steps of:
4 receiving an electromagnetic signal over the packet-switched wireless
5 communications network by a wireless communication device having a receive
6 antenna pattern;
7 determining if the electromagnetic signal is from an intended or
8 unintended source; and
9 adapting the receive antenna pattern if the electromagnetic signal is from
10 an unintended source.

1 2. The method of claim 1 wherein the determining step further comprises
2 comparing an identifier of the source included in the electromagnetic signal to
3 a list of identifiers associated with intended sources to determine that the
4 source is an intended source.

1 3. The method of claim 1 wherein the determining step further comprises
2 comparing an identifier of the source included in the electromagnetic signal to
3 a list of identifiers associated with unintended sources to determine that the
4 source is an unintended source.

1 4. The method of claim 1 further comprising the step of weighting the
2 received electromagnetic signal.

1 5. The method of claim 4 wherein the adapting step further comprises
2 creating a null in the receive antenna pattern at a location determined in
3 response to the location of the unintended source.

1 6. The method of claim 1 wherein an unintended source is a cordless
2 telephone.

1 7. The method of claim 1 wherein an unintended source is a node in the
2 network.

1 8. An apparatus for adaptively controlling an antenna pattern of a wireless
2 network device in a packet-switched wireless communications network, the
3 apparatus comprising:

4 first and second antenna elements each receiving an electromagnetic
5 signal from a source over the packet-switched network and forming a receive
6 antenna pattern;

7 a verification module, in communication with the antenna elements,
8 receiving the signal from the antenna elements and verifying whether the
9 source of the signal is an intended or unintended source; and

10 a controller in communication with at least one of the antenna elements
11 and with the verification module to adaptively control the receive antenna

12 pattern in response to a determination that the source of the electromagnetic
13 signal is an unintended source.

1 9. The apparatus of claim 8 wherein the controller comprises a weighting
2 module having a complex weight associated therewith in communication with
3 at least one antenna element and a determination module in communication
4 with the weighting module and the verification module, the determination
5 module determining the complex weight used to generate a null in the receive
6 antenna pattern at a location determined in response to the location of the
7 unintended source.

1 10. The apparatus of claim 8 wherein the electromagnetic signal contains
2 information indicative of a specific network protocol, the information being
3 used to verify the source of the signal as an intended or unintended source.

1 11. The apparatus of claim 8 further comprising a combination module in
2 communication with the first and second antenna elements to combine the
3 received signal from each of the antenna elements.

1 12. The apparatus of claim 8, wherein the apparatus is a wireless network
2 card.

1 13. The apparatus of claim 8, wherein the unintended source is a cordless
2 telephone.

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1 ~~13.~~ The apparatus of claim 8, wherein the unintended source is a node in the
2 network.

1 ~~14.~~ In a packet-switched wireless communications network, a method for use
2 by a wireless communication device having a plurality of antennas to control a
3 direction of communication over the network, the method comprising the steps
4 of:

5 cooperatively producing by the plurality of antennas of the wireless
6 communication device an antenna pattern for exchanging electromagnetic
7 signals over the packet-switched wireless communications network; and
8 adapting the antenna pattern produced by the plurality of antennas in
9 response to an electromagnetic signal received over the packet-switched
10 wireless communications network to control a direction of subsequent
11 communication over the network.

1 ~~15.~~ The method of claim 14, wherein the antenna pattern is a receive
2 antenna pattern.

1 ~~16.~~ The method of claim 14, wherein the adapting of the antenna pattern
2 reduces noise in subsequently received electromagnetic signals.

1 ~~17.~~ The method of claim 14, wherein the adapting of the antenna pattern
2 increases a signal-to-noise ratio of transmitted electromagnetic signals.

19.
18. The method of claim 14, wherein the adapting of the antenna pattern
2 reduces an effect of interference from an interfering source.

19. The method of claim 14, wherein the adapting of the antenna pattern
2 reduces an effect of interference from an interfering source.